

## PHOTOGRAPHY.

A valuable application has been made by Captain Ibbetson of a Photogenic process for rapidly producing perfect drawings of fossil shells on metallic plates, from which, when fixt by the engraver's tool, lithographic transfers may be rapidly multiplied to an almost indefinite extent. This process promises to be applicable to organic remains of every kind, and consequently of great utility in Palæontology. From a beautiful fossil starfish I sent by one day's mail to Captain Ibbetson, in London, I received, by the next mail, a parcel of most exact impressions, taken from a photographic drawing, transferred to stone by the process above mentioned.—*Dr. Buckland's Anniversary Address to the Geological Society, 1841.*

## BIOGRAPHICAL NOTICE OF BLUMENBACH.

The death of Blumenbach was briefly recorded in our sixth volume, p. 234. The account of this distinguished man is from Dr. Buckland's Anniversary Address to the Geological Society.

Professor BLUMENBACH died at Göttingen on the 22nd of January 1840, in the 89th year of his age: he was born at Gotha, May 11, 1752, and early imbued with a taste for natural history and medicine by his father, a native of Leipsic, who died in 1787, in the office of Pro-rector and Professor in the Gymnasium at Gotha. At the age of 17, A.D. 1769, he began his academical career at Jena by the study of literature under Baldinger, and of natural history and archæology under his relative Professor Walch, and three years after proceeded to Göttingen to complete his studies, where he immediately became intimate with Heyne, Professor Büttner, and Michaelis, whose son was then a fellow-student in medicine. The rich collection of voyages and travels to which he had access in the library of Professor Walch, suggested to him, as the subject of his exercise for his Degree of Doctor, a dissertation on the native varieties of the human race, which became the first germ of his future extensive researches in Anthropology, in which he derives the three great varieties of the human family from a primary stem of the Caucasian race. His first public employment was a gratuitous undertaking to arrange the cabinet of natural history which the University had purchased from Professor Büttner, which soon brought him favourably to the notice of the minister and curator of the University. In 1775 he was appointed a Private Teacher in Natural History; in the following year an Extraordinary Professor, and in 1778 an Ordinary Professor of Medicine and Natural History in the University of Göttingen.

In 1784 he became a Member of the Royal Society of Göttingen; in 1788, a Counsellor; and in 1812, perpetual Secretary of the Class of Physics and Mathematics in the same Society. In 1816 he was appointed a Member of the Superior Council of Medicine, and in 1821, a Commander of the Guelphic Order. His talent as a lecturer, and profound knowledge of medicine, anatomy and natural history, soon made Göttingen a centre of attraction to the

students of all Germany; nor did this attraction cease during a brilliant career of more than fifty years. In 1784, his celebrated lecture on the eyes of the White Negro\* awakened an intense interest throughout the scientific world, and, together with his Inaugural Essay upon the native varieties of the human race, became the nucleus of his future works on the Natural History of Man.

In 1790 appeared the first Decad of his collection of skulls of different nations, a subject which continued among the most favourite themes of his study, from its first commencement in his Inaugural Dissertation, to his last essay upon a Macrocephalus in 1833.

On the celebration of the Jubilee of his Doctoriat, Sept. 19th, 1825, the company of the most distinguished naturalists and medical practitioners of Germany then assembled at Göttingen resolved, on the suggestion of Rudolphi, to testify their gratitude for the benefits they had individually received from his oral instructions and published works, and to perpetuate the memory of this remarkable assembly, by the foundation of a travelling Fellowship in honour of Blumenbach, and by a medal†, bearing on its obverse three skulls of the European, Ethiopic and Mongolian races.

The expressions of piety, gratitude, and affection which are recorded in the elder Sömmering's celebrated Inaugural Dissertation give utterance to feelings, in which the pupils collected around him during more than half a century have, without exception, participated.

He was the great precursor of Cuvier in comparative anatomy, and was the first to demonstrate the value of this science in its relation to pathology, and to convince mankind of the truth of the observation of Haller—that physiology has been more illustrated by comparative anatomy than by the dissection of the human body, so that henceforth this subject must become an essential part of medical education.

The present is not the fit occasion to enter into a discussion of the unrivalled merits of his lectures on pathology, comparative anatomy, natural history, and physiology; nor to set forth the number and nature of his multifarious publications on these subjects, and also on archæology, literature, and the fine arts, which, during a period of sixty years, enriched the Commentaries of the Royal Society of Göttingen, and the medical, literary and philosophical periodicals of Germany; nor does the time permit me to enter on an analysis of his lucid and instructive Manuals, which were soon translated into foreign languages, and became the textbook of teachers of comparative anatomy and physiology throughout Europe; I shall rather call your attention to his acute perception of the value of organic remains in relation to geology, as affording evidence of past changes and revolutions which have affected the surface of the globe.

\* De oculis Leucaethiopum et iridis motu. Soc. R. Gott., v. vii. p. 29—62.

† With the following inscription, "*Naturæ Interpreti, Ossa Loqui Juvēti, Physiophilī Germanici*, 19 Sept. 1825."

In his two celebrated Essays on the Archæology of the Earth, 1801 and 1806, he expresses his concurrence with Leibnitz in comparing the petrified remains of organic bodies to the documents which historians discover in medals, inscriptions, and monuments of ancient art; and regards them as affording no less certain chronological evidence of physical changes during the construction of the earth, than we extract from coins and medals respecting events which they record in the history of mankind.

He judiciously explains the occasional discovery of human bones and works of art in contact with the relics of extinct species; and views the changes that occur in the fossil remains of the successive strata as true indications of consecutive changes in the past condition of the globe.

“Mundi naturam totius ætas  
Mutat, et ex alio terram status excipit alter.”

LUCRET.

The frozen rhinoceros of Pallas, and remains of herds of extinct elephants on the ice-bound shores of Siberia; the bones of the same extinct species of elephants and of rhinoceros, mixed with those of lions and hyænas in the caverns of the Hartz, and in the gravel beneath the very town of Göttingen, led him to infer, as we have now additional reasons for doing, the former existence of a nearly tropical and uniform condition of climate over the now temperate and frigid portions of northern Europe, wherein these animals were formerly indigenous; and in further evidence of high temperature in these northern latitudes, he appeals to the quantities of fossil amber so abundant in the north of Germany, and to the extinct species of insects which the amber so frequently contains.

He had carefully inspected in the Museum of Schaffhausen the fossil remains of Ceningen, and recognized their proximity to the existing flora and fauna of Switzerland; among these he enumerates small rodent animals, birds, frogs, numerous aquatic insects, and leaves and blossoms of plants, which more recent discoveries have referred to a freshwater formation of the Meiocene period.

He had distinctly recognized the fossil beaks of extinct cuttlefish in the muschelkalk of the Heimberg, and the septa and siphon of the Orthoceratites of Clausthal; and from the family of Ammonites, which he knew to be numerous in species beyond most other fossil shells, he had selected that remarkable example from the Himalaya mountains called the Salagram\*, specimens of which were subsequently placed in our museum by the great oriental scholar Mr. Henry Colebrook. The Salagram is a hollow cavity or mould bearing the impression of Ammonite, included in concretions of lias from the bed of the Ganges near Patna, which Indian superstition has sanctified as a mystic symbol of the Metamorphosis of Vishnu. (Specimen Archæologiæ Telluris, § 10.)

\* This specimen was given to him by the chaplain of a Hanoverian regiment who brought it from India.



He duly appreciated the differences between the remains of the copper-slate, and muschelkalk and transition limestone within the limited vicinity of Göttingen; and further observed the degrees of perfection in the structure of fossil animals, receding gradually into more and more simple forms of organization, as he traced them backwards from the extinct Mammalia of the caverns to the remains of molluscous and radiated animals in the transition rocks; and though his premises were few, he rightly drew from them conclusions, less extensive, but similar to those which forty years of further observation over large portions of the earth have more fully established, as to the antiquity of the globe.

His love for archæology led to his making a collection of antique gems. He had also a collection of engravings by the older masters, and of ancient woodcuts, which he valued as indices of the progress of science at the time when they were made.

Blumenbach was a wise and good and profoundly learned man; born with considerable talent, and well educated from his childhood, he passed his whole life in the best literary and scientific society; and being placed in an influential academical position, he poured forth daily, during more than half a century, from his rich reservoirs of knowledge unceasing streams to instruct and benefit mankind. His biographer Mark (Göttingen, 1840) enumerates more than a hundred distinct publications of his on various subjects, among which are some biographical sketches of professors and other distinguished men. He possessed a happy, lively and cheerful disposition; was a man of most punctual and temperate habits, ate always the same moderate quantity of food, and was never intoxicated in his life. He abandoned smoking at 66; at 86 he left off taking snuff; and could read small print without spectacles at 88. Blumenbach seemed born for the express functions of a Professor; from morning till night, his academic duties were his daily occupation and delight; and the works of his leisure hours are a register of the progress of discovery in many branches of natural science during more than half a century in which he flourished. As a lecturer his style was familiar, playful, and not unfrequently jocose, always animated and sometimes eloquent, leaving a clear understanding and deep remembrance of the matter he wished to impress upon his hearers; he was the personal friend, as well as preceptor, of all his pupils, of whom great multitudes have expressed their gratitude in dedications of their works to the teacher from whom they derived the rudiments of their knowledge.

In 1791 he visited London, which he named the sixth quarter of the world, and was honourably received by Sir Joseph Banks and the Royal Society, where he assisted at the opening of six mummies, respecting which he published a paper in the *Philosophical Transactions*; he was also honoured with a command to visit King George the Third at Windsor. In 1803 he accompanied the King of Bavaria on a tour to the Hartz and Magdeburg. In 1806 he went to Paris on diplomatic business connected with the University of Göttingen,

and was introduced by Lacépède to the Emperor Napoleon. At the celebration of the centenary jubilee of the University of Göttingen, in 1825, the King of Hanover forgot not to visit the house of his old preceptor, which, in 1786, he had so often frequented as a student together with his two royal brothers, the Duke of Sussex and the Duke of Kent.

In Professor Blumenbach the world has sustained a loss of one of those men of extraordinary genius whose talents are destined to exert a large influence on the knowledge and opinions of the age in which they live, and to advance permanently the progress of those sciences to which they have devoted their attention.

#### METEOROLOGICAL OBSERVATIONS FOR APRIL 1842.

*Chiswick*.—April 1. Heavy clouds: rain: slightly overcast. 2. Rain: clear and cold, with brisk N.E. wind. 3. Very clear: cloudy: slight hail shower. 4. Cold and dry: clear and frosty at night. 5. Clear and cold, with very dry air: sharp frost at night. 6. Slight haze. 7. Cold and dry: densely overcast. 8. Cold and dry: sunshine through slight haze: clear and frosty at night. 9, 10. Cold and dry. 11. Slight shower: clear and cold. 12. Cold and dry: cloudy. 13. Cold rain. 14. Showers, partly hail. 15. Bleak and cold. 16. Clear and cold, with parching N.E. wind. 17, 18. Overcast. 19. Dry haze: clear and frosty at night. 20, 21. Slight haze: very fine. 22. Foggy: dry haze: clear and fine. 23. Very fine. 24. Very fine: heavy thunder storm in afternoon, with partial showers of rain, and large hail in some parts near London. 25. Very fine. 26. Clear and dry. 27. Fine: air exceedingly dry: slight frost at night. 28. Hot and dry. 29. Slight haze: fine. 30. Fine.

*Boston*.—April 1. Cloudy: heavy rain early A.M.: rain P.M. 2. Stormy: rain early A.M. 3, 4. Cloudy. 5, 6. Fine. 7. Cloudy. 8—10. Fine. 11—13. Cloudy. 14. Rain: rain early A.M. 15. Cloudy. 16. Cloudy: rain P.M. 17, 18. Cloudy. 19, 20. Fine. 21—23. Cloudy. 24. Fine. 25. Fine: foggy early A.M. 26—28. Fine. 29. Fine: foggy early A.M. 30. Cloudy.

*Sandwich Manse, Orkney*.—April 1. Showery. 2. Snow showers. 3. Clear: aurora. 4. Clear: cloudy. 5. Cloudy: rain. 6. Clear and warm. 7. Fog. 8. Cloudy and warm. 9. Cloudy. 10, 11. Clear. 12. Clear: aurora. 13. Cloudy: clear. 14, 15. Clear. 16, 17. Cloudy. 18. Drops. 19. Cloudy. 20. Clear. 21. Fine: Clear: fog. 23. Cloudy. 24. Clear. 25. Very clear. 26. Very clear: aurora. 27. Very clear and warm. 28. Very clear: fog. 29. Very clear. 30. Fog: cloudy.

*Applegarth Manse, Dumfries-shire*.—April 1. Showers. 2. Hail. 3. Frost: slight A.M. 4. Fair and clear: frost A.M. 5, 6. Slight frost A.M. 7. Fair, but cloudy. 8. Fair and fine. 9. Fair and fine: slight frost A.M. 10. Fair and fine: no frost. 11. Fair and fine: frost A.M. 12. Fair and fine, but withering. 13. Cloudy and drougthy. 14. Drougthy, but threatening rain. 15. Drougthy: still fair. 16. Drougthy. 17. Drougthy: frost A.M. 18. Drougthy. 19. Drougthy: frost A.M. 20. Drougthy and warm. 21. Drougthy. 22—30. Drougthy: very withering.

Sun shone out 30 days. Rain fell 1 day. Hail 1 day. Slight frost A.M. 9 days. Fair 28 days.

Wind north 1 day. North-north-east  $\frac{1}{2}$  day. North-east  $5\frac{1}{2}$  days. East-north-east 3 days. East 7 days. East-south-east 1 day. South 2 days. South-west 3 days. West-south-west 2 days. West  $1\frac{1}{2}$  day. North-west 2 days. North-north-west  $1\frac{1}{2}$  day.

Calm 14 days. Moderate 9 days. Brisk 1 day. Strong breeze 6 days.

Mean temperature of the month ..... 45°·8

Mean temperature of April 1841 ..... 44 ·4

Mean temperature of spring-water ..... 47 ·00

*Meteorological Observations made at the Apartments of the Royal Society, London, by the Assistant Secretary, Mr. Roberton; by Mr. Thompson, at the Garden of the Horticultural Society at CHISWICK, near London; by Mr. Veall, at BOSTON; by the Rev. W. Dunbar, at Applegarth Manse, DUMFRIES-SHIRE; and by the Rev. C. Clouston, at Sandwick Manse, ORKNEY.*

Days of Month.	Barometer.						Thermometer.						Wind.						Rain.				Dev. point.						
	Chiswick.			Dumfries-shire.			Orkney, Sandwick.		London: R.S.		Chiswick.		Dumfries-shire.		Orkney, Sandwick.		London: R.S. g.a.m.		Chiswick.		Dumfries-shire.			Orkney, Sandwick.					
	Roy. Soc. g.a.m.	Max.	Min.	8 & 10 a.m.	9 a.m.	10 p.m.	9 & 11 a.m.	8 & 10 p.m.	Fahr.	Self-reg. Mx.	Min.	Max.	8 & 10 a.m.	Max.	Min.	8 & 10 p.m.	g.a.m.	8 & 10 p.m.	R.S. g.a.m.	Chiswick. 1 p.m.	Boston.	Dumfries-shire.		Orkney, Sandwick.	London: R.S. g.a.m.	Chiswick.	Boston.	Dumfries-shire.	Orkney, Sandwick.
1842.																													
April																													
1.	29.340	29.457	29.303	28.90	29.11	29.69	29.57	29.22	29.57	48.0	57.6	43.4	51	32	40	49	34	41	39	s.	w.	w.	w.	w & n.	172	0.2	0.87	11	45
2.	29.606	29.780	29.576	29.21	29.69	29.81	29.84	29.82	29.82	41.8	48.6	38.0	47	31	42	45	35.5	35	33	nw.	n.	n.	n.	n.	0.88	0.2	0.14	17	42
3.	29.836	30.012	29.819	29.50	29.88	30.06	30.26	30.26	30.26	38.4	46.5	34.2	47	35	40.5	49	29.5	44	40	nw.	n.	n.	n.	n.				14	36
4.	30.188	30.300	30.182	29.82	30.20	30.21	30.20	30.20	30.17	40.7	46.7	36.5	50	23	41.5	55	30.5	47	45	n.	n.	n.	n.	n.				36	36
5.	30.392	30.355	30.286	29.98	30.30	30.17	30.16	30.18	30.18	41.7	46.7	36.5	54	37	41.5	57	30.5	48	45	n.	n.	n.	n.	w.				36	36
6.	30.200	30.188	29.987	29.81	30.15	30.00	30.20	30.20	30.15	42.4	47.5	35.3	54	37	41.5	57	30.5	48	45	n.	n.	n.	n.	w.				42	42
7.	29.562	29.997	29.806	29.48	29.94	29.92	30.12	30.12	30.15	43.7	52.0	39.6	58	27	46.5	57	35.5	45	45	n.	e.	e.	s.	sw.				43	43
8.	30.094	30.190	30.053	29.70	30.08	30.03	30.20	30.31	30.15	44.8	56.9	39.4	58	27	46.5	57	35.5	45	45	e.	e.	e.	sw.	sw.				36	36
9.	30.358	30.331	30.307	29.70	30.25	30.25	30.38	30.41	30.41	44.2	52.7	37.0	57	34	45.5	56	31	50	43	e.	e.	e.	sw.	sw.				33	33
10.	30.388	30.355	30.281	29.70	30.28	30.23	30.34	30.38	30.38	43.2	46.6	36.7	46	29	43.5	55	33.5	45	42	nc.	e.	e.	sw.	sw.	0.50	0.1	0.01	37	37
11.	30.248	30.216	30.137	29.89	30.20	30.21	30.34	30.38	30.38	43.7	46.3	36.7	49	34	43	52	31	48	41	nc.	e.	e.	sw.	sw.				33	33
12.	30.118	30.104	30.023	29.77	30.12	30.12	30.36	30.36	30.36	43.2	46.3	36.7	46	36	41	51	31	45	38	nc.	e.	e.	sw.	sw.	0.50	0.1	0.01	37	37
13.	29.900	29.992	29.927	29.77	30.12	30.12	30.36	30.36	30.36	43.2	46.3	36.7	49	34	43	52	31	48	41	n.	nc.	nc.	nc.	nc.	0.03	0.1	0.29	38	38
14.	29.932	30.025	29.940	29.60	30.15	30.11	30.34	30.34	30.34	44.3	47.6	40.3	52	31	43	49	36.5	46	41	n.	nc.	nc.	nc.	nc.				39	39
15.	30.084	30.068	30.052	29.72	30.15	30.20	30.35	30.42	30.42	44.3	47.6	40.3	51	36	42.5	49	36.5	46	41	nc.	nc.	nc.	nc.	nc.				38	38
16.	30.144	30.147	30.113	29.83	30.22	30.21	30.34	30.33	30.33	44.6	49.0	39.5	51	41	45	59	31	46	45	nc.	nc.	nc.	nc.	nc.				40	40
17.	30.206	30.182	30.164	29.79	30.20	30.10	30.27	30.21	30.21	44.4	48.7	37.8	51	41	45	59	31	46	45	nc.	nc.	nc.	nc.	nc.				40	40
18.	30.216	30.201	30.091	29.75	30.13	30.10	30.14	30.11	30.11	44.2	47.4	42.0	47	40	43.5	59	33	48	46	n.	nc.	nc.	nc.	nc.				43	43
19.	30.232	30.199	30.154	29.76	30.09	30.09	30.11	30.12	30.12	42.3	47.8	41.3	63	20	49	54	33	48	47	n.	nc.	nc.	nc.	nc.				44	44
20.	30.182	30.150	30.083	29.69	30.03	30.09	30.11	30.12	30.12	46.8	50.5	45.0	66	36	51	68	37	46	44	ene.	e.	e.	nc.	nc.				44	44
21.	30.022	29.994	29.809	29.59	29.97	29.90	30.14	30.10	30.10	46.8	50.5	45.0	66	36	51	68	37	46	44	ene.	nc.	nc.	nc.	nc.				50	50
22.	29.942	29.901	29.878	29.43	29.90	29.86	30.04	30.03	30.03	54.3	61.3	47.0	75	37	53.5	69	41	47	43	nnw.	nc.	nc.	nc.	nc.				54	54
23.	29.942	29.901	29.878	29.43	29.90	29.86	30.04	30.03	30.03	54.3	61.3	47.0	75	37	53.5	69	41	47	43	nnw.	nc.	nc.	nc.	nc.	0.01	0.1	0.36	54	54
24.	29.974	29.948	29.921	29.54	29.98	29.91	30.06	30.06	30.06	57.8	69.3	49.0	73	43	56	68	42	52	47	e.	e.	e.	e.	0.07	0.1	0.36	54	54	
25.	30.080	30.028	30.018	29.61	30.08	30.06	30.14	30.18	30.18	57.8	69.3	49.0	73	43	56	68	42	52	47	e.	e.	e.	e.	0.07	0.1	0.36	54	54	
26.	30.114	30.055	30.045	29.55	30.08	30.06	30.14	30.18	30.18	57.8	69.3	49.0	73	43	56	68	42	52	47	nc.	e.	e.	e.	0.07	0.1	0.36	54	54	
27.	30.048	30.090	29.959	29.55	30.08	30.06	30.14	30.18	30.18	57.8	69.3	49.0	73	43	56	68	42	52	47	nc.	e.	e.	e.	0.07	0.1	0.36	54	54	
28.	30.000	30.051	29.941	29.55	30.02	30.01	30.16	30.18	30.18	55.3	66.0	45.7	71	35	54	68.5	37	48	45	ene.	e.	e.	e.	0.07	0.1	0.36	54	54	
29.	30.088	30.061	29.881	29.55	30.00	29.93	30.16	30.10	30.10	55.3	66.0	45.7	71	35	54	68.5	37	48	45	ene.	e.	e.	e.	0.07	0.1	0.36	54	54	
30.	29.882	29.835	29.800	29.36	29.92	29.94	30.10	30.13	30.13	57.7	64.6	47.6	74	41	48.5	66.5	43	47	45	ene.	e.	nc.	nc.	0.07	0.1	0.36	51	51	
Mean.	30.068	30.072	29.986	29.63	30.373	30.039	30.160	30.178	30.178	46.9	53.8	41.1	57.70	34.86	46.2	54.9	35.7	47.18	43.16	Sum.	0.15	1.34	0.00	0.470	0.15	1.34	0.00	42	42